Trauma Transfers Yesterday, Today and Tomorrow: Making Sense of the Crazy Quilt

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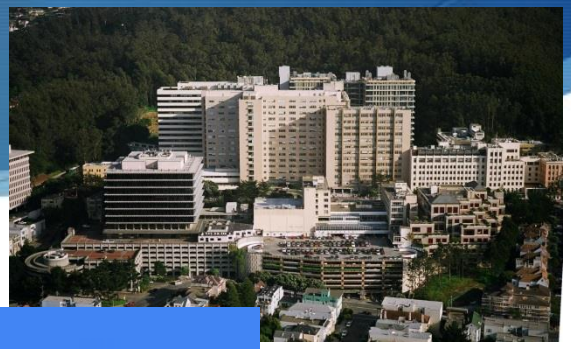
Regional Organization: California

Crazy Quilt

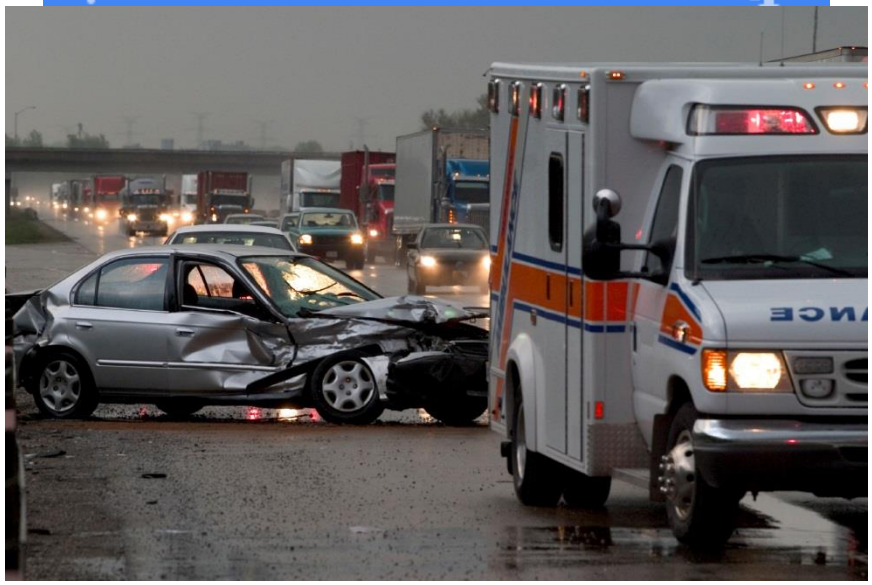
Trauma Transfers: Yesterday

- Male 20's with multiple SW to the chest
- Positive FAST for impending tamponade
  - "OR-1 case" for sternotomy and repair of RV
  - Patient failed to stabilize
  - US in OR shows wide open TR with likely Chordae tendinae or papillary muscle injury
  - Immediate transfer to UCSF: Parnassus by ambulance with a trauma blood cooler, open chest and trauma surgeon and anesthesiologist in attendance for Bypass capabilities.
  - OR/Perfusionist prepped in anticipation of arrival at UCSF

Trauma Transfers: Yesterday



ZSFG, 1001 Potrero Avenue, San Franci



via 16th St — 20 min

16 min without traffic — 3.6 miles

Trauma Transfer: Today

- 35 year old man with multiple GSW to LUE, RLE, and torso found in street in Salinas, alert and combative
- On arrival in Salinas patient was in PEA arrest with fixed and dilated pupils
- ED thoracotomy with aortic cross clamp and multiple rounds of code medications and internal cardioversion with no response for 18 min
- Ongoing open cardiac massage

Trauma Transfer: Today

- Note states that they were about to give up when the patient had return of signs of life and cardiac activity and restoration of carotid pulse
- FAST negative
- No pulses distal to knee in RLE or in LUE radial or ulnar with open wounds associated with both extremities, open fracture of RLE
- Blood evacuated from left chest with placement of tube thorocostomy on both left and right to evacuate hemo/pneumothorax
- Exploratory laparotomy negative

Trauma Transfer: Today

- Vascular surgery called to operate simultaneously with Trauma team
- Exploration at Right knee with interruption of popliteal artery repaired with interposition PTFE graft and washout of open fracture
- Venous bleeding managed by ligation
- Exploration of Upper extremity wound by Vascular while Trauma team performs prophylactic fasciotomy of lower extremity

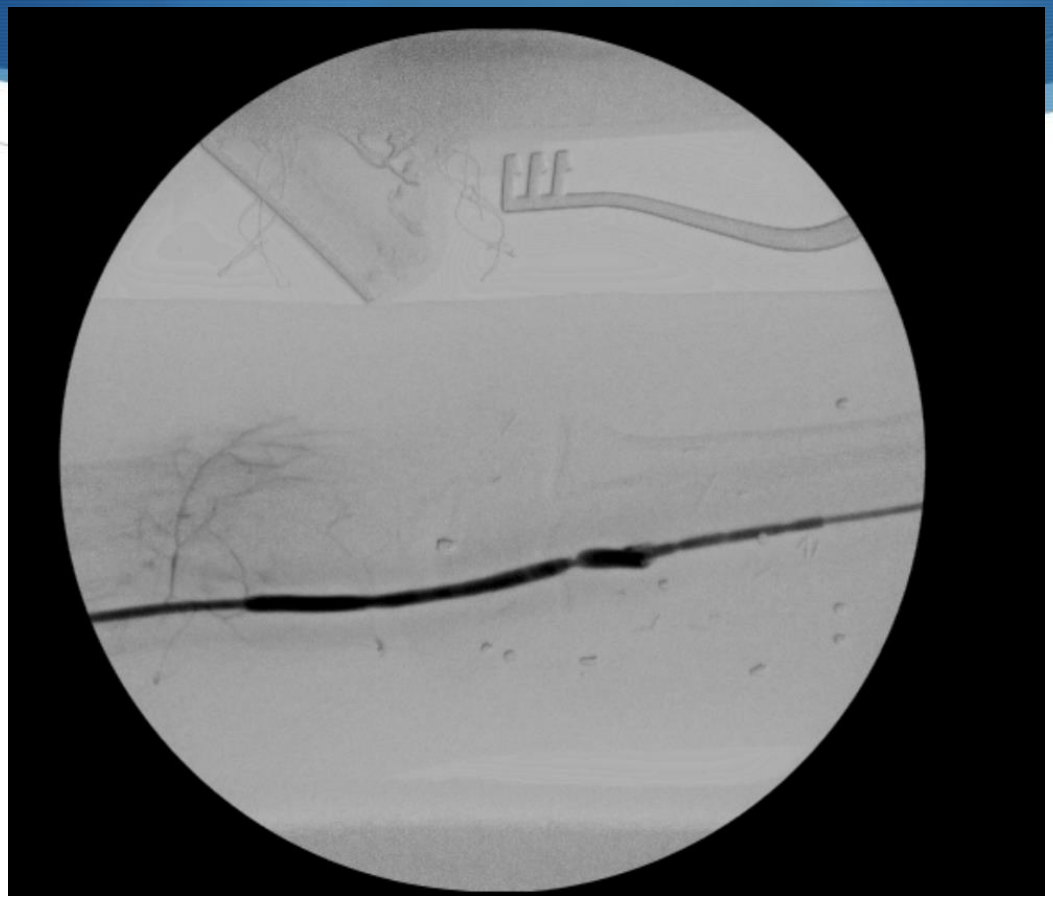
Trauma Transfer: Today

- Unable to revascularize upper extremity so shunt placed from brachial to radial artery with ace wrap to secure in place Weak doppler signal
- 24 U PRBC, 22 U FFP, 4 U platelets, 2 U Cryo, 5000 cc Crystalloid, 1800 cc UO
- Call from OR for interfacility transfer to SCVMC for revascularization and ongoing care
- Chest closed, abdomen open
- SCVMC Trauma confirms Vascular willing to accept and OK's transfer (via helicopter)

OR: SCVMC

- Re-vascularization with Vascular Surgery and Hand/Plastics-Reverse saphenous vein graft
- Unable to cover due to tissue damage so fasciotomy performed on dorsum to allow tissue transfer
- STSG
- Carpal Tunnel release

Trauma Transfer: Completion Angiogram SCVMC



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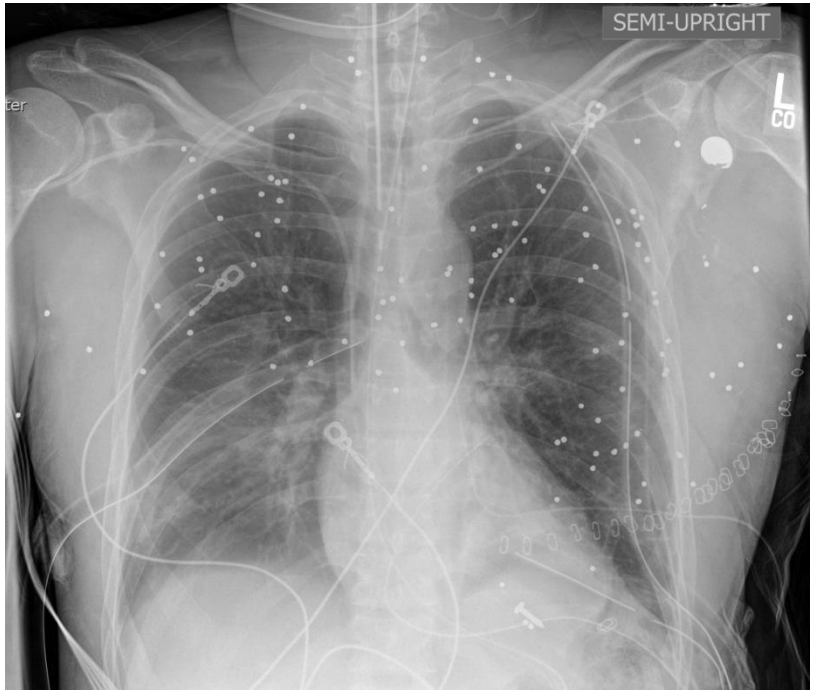

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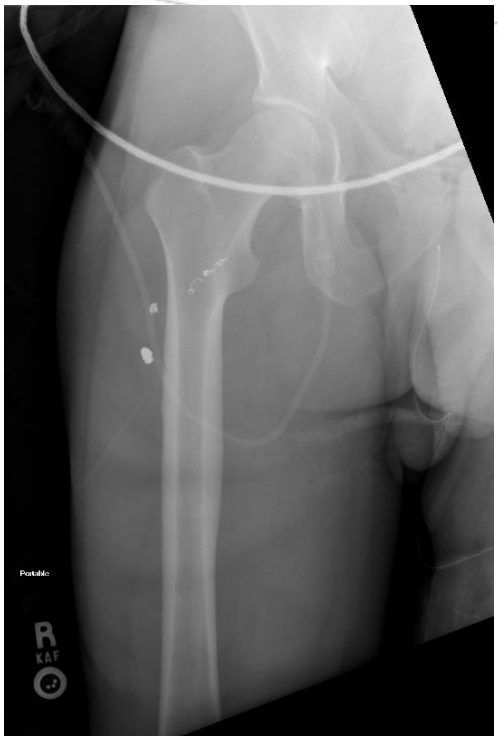

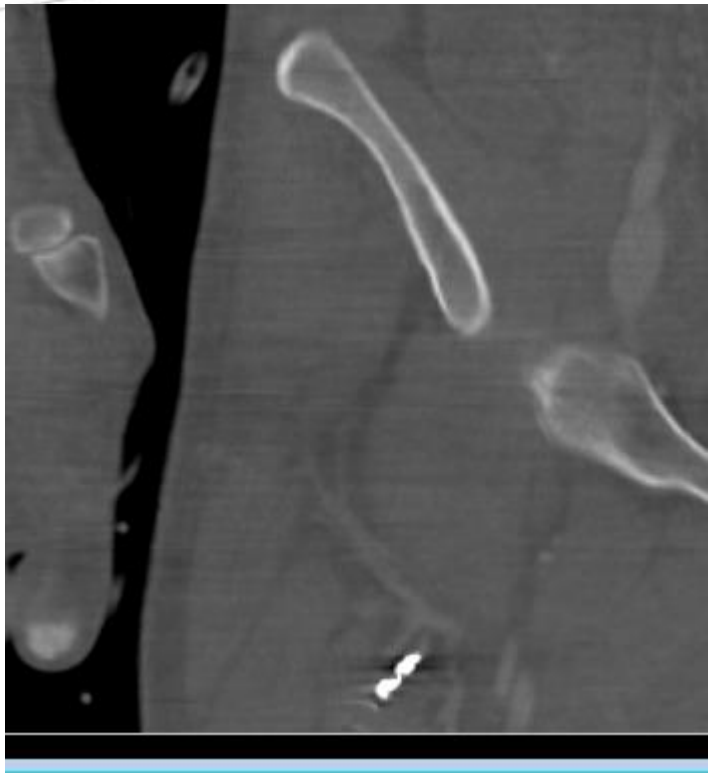

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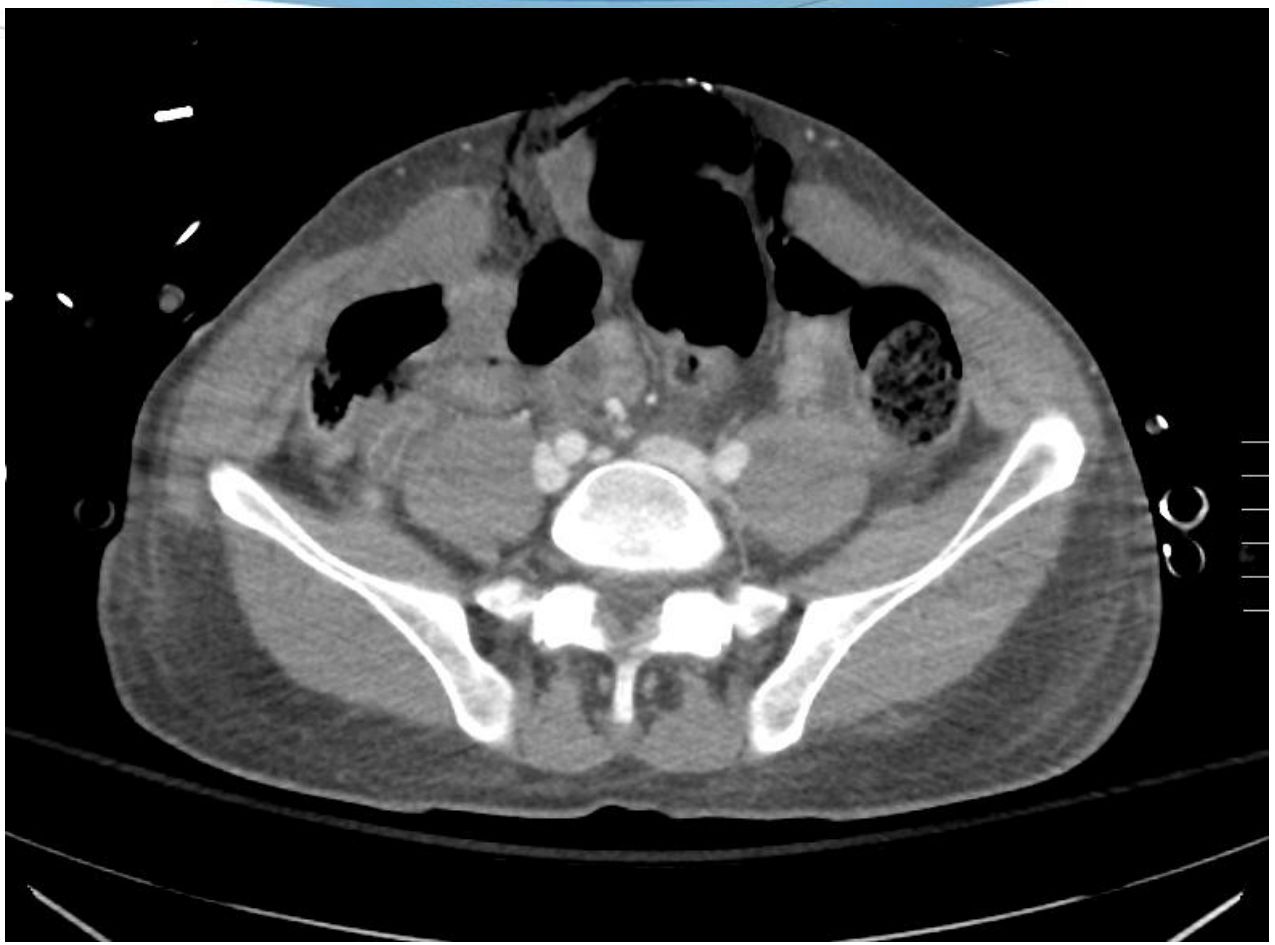

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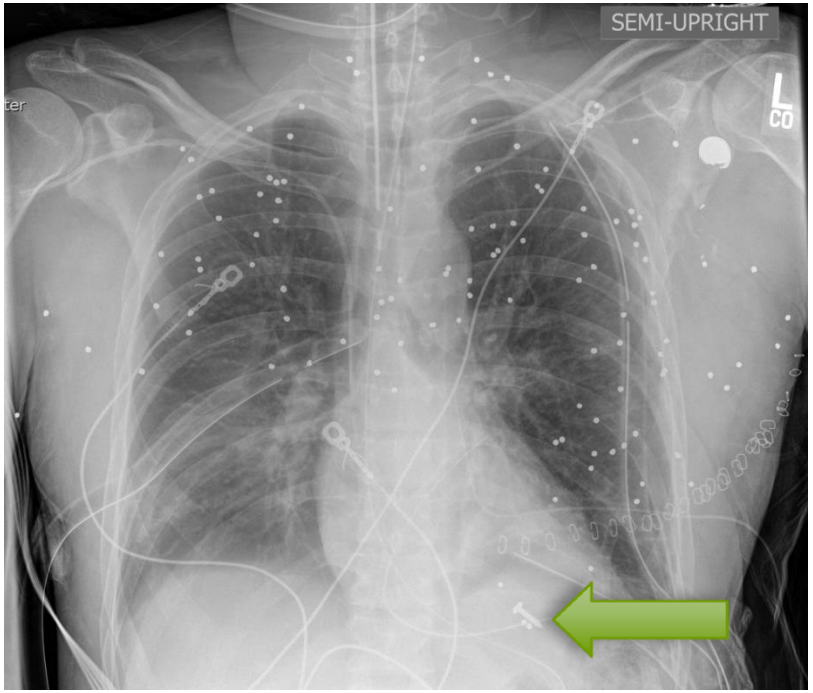
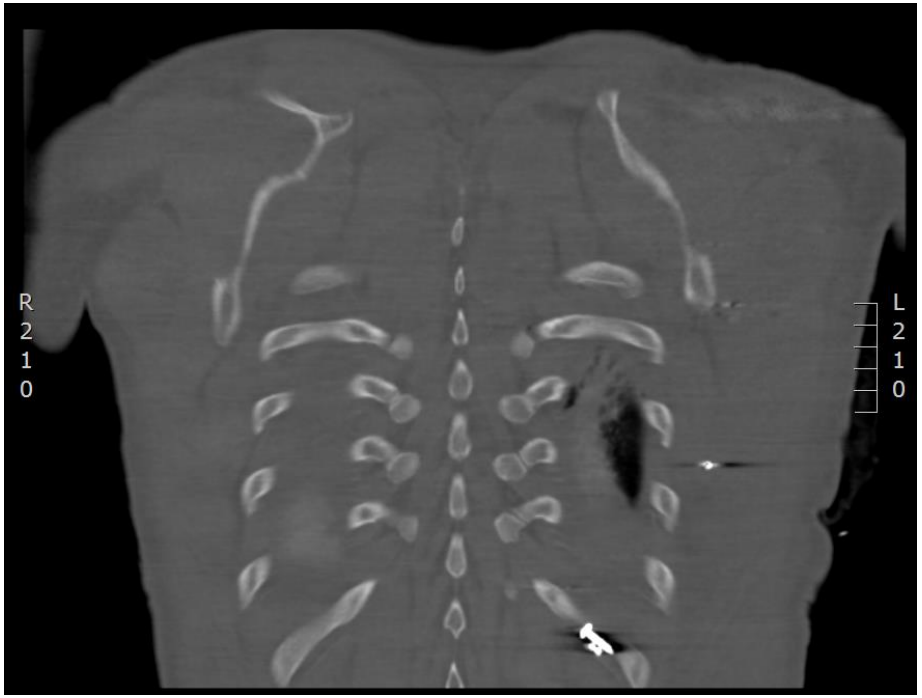




ICU course

- Sedation Vacation after CT scan to evaluate for extubation "slight clonic movements with no gaze deviation suspicious for seizure activity"
- EEG confirms status epilepticus- eventual control with 3 medications
- Unable to evaluate extent of hypoxic brain injury due to multiple metal FB but presumed secondary to initial period of arrest at sending facility and the cause of the seizure activity

ICU course

- Communication from SPD- Potential group responsible "knows that he was transferred to SJ and may still represent risk to patient"
- Multiple abdominal wash outs with staged closure of laparotomy
- Trach: eventually passes swallow
- Patient eventually more awake with aphasia and impulse control issues
- Family no longer wants anything to do with patient

Hospital course

- Hand requested to keep patient until wounds on arm stable
- Returned to OR for debridement and full thickness skin graft over 1 fasciotomy site
- Seeking sub-acute facility: Central Coast Alliance/TPM sending facility
- Fluid accumulation at leg fasciotomy wound threatening skin graft: traumatic arthrotomy
- Explored and repaired by plastics/ortho
- Notified sending facility who wanted him back to monitor as it was close to his PTFE graft at Popliteal

Trauma Interfacility Transfers: Objectives

- Types of Transfers: retriage, interfacility
- Speed of Transfer
- Rule of 2's: twice as sick or half as interesting
- We only know about the patients we know about
- Sub-acute care in cross county transfers

Retriage: Trauma Patients Arriving at Non-Trauma Centers

- Self Present-Homeboy ambulance
- Rural or counties without Trauma Centers
- Mis-triage by EMS
- Pediatric Patients arriving at non pediatric centers

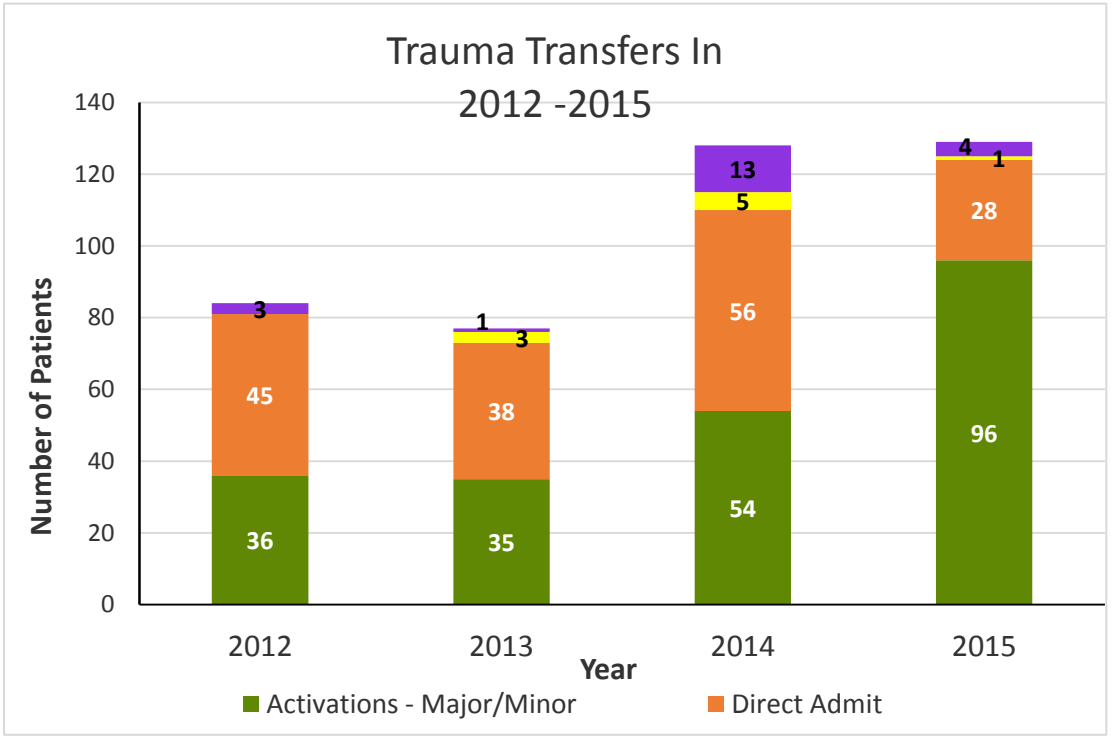
Complex Subspecialty Care: Inter-facility Transfers Level 1-2 Trauma Centers

- Replantation/mangled extremity
- Complex maxillofacial reconstruction
- New technologies: TVAR
- Neurointerventional

Expidited Transfer Process

- Pre-existing Transfer agreements
- No need for “bed availability”
- Easy button: Trauma transfer phone
- Direct communication physician to physician
- Repatriation

Expidited Transfer Process



Trauma Transfer: Tommorrow

- File sharing prior to transfer: Orange book
- Telemedicine to support rural hospitals
- Protocol for stabilization including OR
- Outcomes for patients who transfer
- Data sharing
- Role of State Trauma leadership/RTCC

Summary

- Transfers should be
- Rare
- Monitored
- Require knowledge of systems within your facility as well as capabilities existing within the region

Thank You!